

WHAT IS CLAIMED IS:

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1. A switch operable under a predetermined condition comprising;

a plurality of switch parts each including a pair of reed pieces; and

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a connecting member of an electrically conductive non-magnetic material via which said plurality of switch parts are serially connected,

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wherein said switch operates only under a condition where all of said plurality of switch parts are operated by external magnetic fields individually and simultaneously acting on said plurality of switch parts.

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2. The switch as claimed in claim 1, wherein said plurality of switch parts includes pole pieces provided on said reed pieces, said pole pieces determining positions where magnetic flux enters and leaves said reed pieces.

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3. A switch operable under a predetermined condition comprising:

a switch part including a pair of reed pieces; and

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a yoke-magnet assembly generating a magnetic field that produces a magnetic pole at a tip of one of said pair of reed pieces such that

said tip is magnetically attracted toward said yoke-magnet assembly and separated away from the other one of said pair of reed pieces, said yoke-magnet assembly being provided at a position opposing said switch part,

wherein said switch operates only under a condition where said reed pieces of said switch part come into contact with each other by an external magnetic field producing an opposite magnetic pole at said tip.

4. The switch as claimed in claim 3, wherein said switch part further includes pole pieces provided on said reed pieces, said pole pieces determining positions where magnetic flux enters and leaves said reed pieces.

5. A switch operable under a predetermined condition comprising:

a plurality of switch parts each including a pair of reed pieces;

a connecting member made of an electrically conductive non-magnetic material via which said plurality of switch parts are serially connected; and

a plurality of yoke-magnet assemblies generating magnetic fields that produce magnetic poles at tips of one of each said pair of reed pieces such that said tips are magnetically attracted toward said yoke-magnet assemblies and separated away from the other one of each said pair

of reed pieces, respectively, said yoke-magnet assemblies being provided at positions opposing said switch parts,

5 wherein said switch operates only under a condition where each said pair of reed pieces of said switch parts come into contact with each other, respectively, by external magnetic fields producing magnetic poles of opposite polarities at said tips.

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6. The switch as claimed in claim 5, wherein said plurality of yoke-magnet assemblies
15 have the same polarity at positions opposing the tips of one of each said pair of reed pieces for all said switch parts.

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7. The switch as claimed in claim 5, wherein said plurality of yoke-magnet assemblies have different polarities at positions opposing the
25 tips of one of each said pair of reed pieces for individual said switch parts.

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8. A switch operable under a predetermined condition comprising:

a first and a second switch part, each said switch part including a pair of reed pieces;
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a connecting member of an electrically conductive non-magnetic material via which said

first and second switch parts are serially connected; and

terminal members provided at both ends of said switch,

5 wherein said switch operates only under a condition where said first and second switch parts are operated by predetermined external magnetic fields individually and simultaneously acting on each of said first and second switch parts,

10 wherein said connecting member and said terminal members have different thicknesses and are embedded in a mold base main body, base parts of said reed pieces being attached to said connecting member and said terminal members.

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9. The switch as claimed in claim 8,
20 wherein said connecting member and said terminal members are made from different parts with different thicknesses that are parts of a plate member that is insert-molded in said mold base main body.

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10. A switch operable under a predetermined condition comprising:

30 a first and a second switch part, each said switch part including a pair of reed pieces; and

 a connecting member of an electrically conductive non-magnetic material via which said
35 first and second switch parts are serially connected; and

terminal members provided at both ends of

said switch,

wherein said switch operates only under a condition where said first and second switch parts are operated by predetermined external magnetic
5 fields individually and simultaneously acting on each of said first and second switch parts,

said switch further comprising a switch assembly including said first and second switch parts and a cover that covers the switch assembly
10 having said first and second switch parts, said cover having a top plate part of a predetermined thickness.

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11. The switch as claimed in claim 10,
wherein said first and second switch parts are offset in a direction perpendicular to a
20 longitudinal direction of said first and second switch parts.

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12. A switch operable under a predetermined condition comprising;

at least one reed switch part that is operated by at least one external magnetic field;
30 and

a yoke-magnet assembly producing a magnetic flux flowing through said reed switch part,

wherein said reed switch part operates only under a condition where at least one external
35 magnetic field acting on said reed switch part is a specific external magnetic field.

5 13. An external magnetic field generating
assembly for applying a magnetic field to each of a
plurality of switch parts of a switch in which first
and second switch parts each including a pair of
reed pieces are serially connected via a connecting
10 member made of an electrically conductive non-
magnetic material, said external magnetic field
generating assembly comprising:

 a first magnet generating a magnetic field
applied to said first switch part; and

15 a second magnet generating a magnetic
field applied to said second switch part,

 wherein orientations of magnetic poles of
said first and second magnets are aligned in a
direction perpendicular to a longitudinal direction
20 of said reed pieces.

25 14. The external magnetic field generating
assembly as claimed in claim 12, polarities of said
magnetic poles of said first and second magnets
being oriented in the same sense,

 said external magnetic field generating
30 assembly further comprising a third magnet provided
between said first and second magnets, an
orientation of magnetic poles of said third magnet
being aligned in a direction perpendicular to a
longitudinal direction of said reed pieces and
35 polarities of said magnetic poles of said third
magnet being oriented in an opposite sense to said
polarities of said first and second magnets.

5 15. An external magnetic field generating
assembly for applying a magnetic field to each of a
plurality of switch parts of a switch in which first
and second switch parts each including a pair of
reed pieces are serially connected via a connecting
10 member made of an electrically conductive non-
magnetic material, said external magnetic field
generating assembly comprising:

20 a single magnet having magnetic poles of a
same polarity at portions opposing said first and
15 second switch parts and a magnetic pole of a
polarity different from said same polarity at a
portion opposing a position between said first and
second switch parts.

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16. A combination comprising:

25 a switch operable under a predetermined
condition, said switch including a plurality of reed
switch parts and at least one connecting member of
an electrically conductive non-magnetic material via
which said plurality of reed switch parts are
serially connected; and

30 an external magnetic field generating
assembly generating magnetic fields meeting said
predetermined conditions for operating said switch.

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17. A combination comprising:

a switch unit and an external magnetic field generating unit,

said switch unit includes:

5 a switch including a first and a second switch part, each said switch part including a pair of reed pieces; a connecting member of an electrically conductive non-magnetic material via which said first and second switch parts are serially connected; and terminal members provided at
10 both ends of said switch; and

a magnet being provided between the first and second switch parts, an orientation of magnetic poles of said magnet being aligned in a direction perpendicular to a direction in which said first and
15 second switch parts are aligned,

said external magnetic field generating unit includes:

a first magnet generating a magnetic field that acts on said first switch part; and
20 a second magnet generating a magnetic field that acts on said second switch part,

an orientation of magnetic poles of said first and second magnets being aligned in a direction perpendicular to a longitudinal direction
25 of said reed pieces.

30 18. A switch device including a first switch unit and a second switch unit,

wherein said first switch unit includes a first switch operable under a first predetermined condition and a first magnet field generating means,
35 said switch including reed switch parts,

said second switch unit includes a second switch operable under a second predetermined

condition and a second magnet field generating means,
said switch including reed switch parts,

said first and second switch units are
positioned such that said first magnetic field
5 generating means opposes said second switch and said
first switch opposes said second magnetic field
generating means.

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19. The switch device as claimed in claim
18, wherein said first and second switch units have
the same structure.

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20 20. The switch device as claimed in claim
18,

wherein said first switch unit is
configured such that said first switch includes
first and second reed switch parts that are serially
connected via a connecting member that is
25 electrically conductive non-magnetic and that said
first magnetic field generating means includes first
and second magnets,

said second switch unit is configured such
that said second switch includes first and second
30 reed switch parts that are serially connected via a
connecting member that is electrically conductive
non-magnetic and that said second magnetic field
generating means includes first and second magnets,
and

35 wherein said first and second switch units
are positioned such that said first and second
magnets of the first switch unit oppose said first

and second reed switch parts of the second switch unit, respectively, and that said first and second reed switch parts of the first switch unit oppose said first and second magnets of the second switch unit, respectively.

10 21. The switch device as claimed in claim 18,

 wherein said first switch unit is configured such that said first switch includes a first and a second reed switch part that are
15 serially connected via a connecting member that is electrically conductive non-magnetic and said first magnetic field generating means includes a first magnet aligned between said first and second reed switch parts, and

20 said second switch unit is configured such that said second switch includes a first reed switch part and said second magnetic field generating means includes first and second magnets aligned on either side of said first reed switch part,

25 wherein said first and second switch units are positioned such that said first and second magnets of the second switch unit oppose said first and second reed switch parts of the first switch unit, respectively, and that said first reed switch
30 part of the second switch unit opposes said first magnet of the first switch unit.

35 22. The switch device as claimed in claim 18,

wherein said first switch unit is
configured such that said first magnetic field
generating means includes a first magnet and said
first switch includes first and second reed switch
5 parts that are aligned on one side of said first
magnetic field generating means and serially
connected via a connecting member that is
electrically conductive non-magnetic and, and

10 said second switch unit is configured such
that said second switch includes a first reed switch
part and said second magnetic field generating means
includes first and second magnets aligned on one
side of said first reed switch part,

15 wherein said first and second switch units
are positioned such that said first and second
magnets of the second switch unit oppose said first
and second reed switch parts of the first switch
unit, respectively, and that said first reed switch
part of the second switch unit opposes said first
20 magnet of the first switch unit.

25 **23.** The switch device as claimed in claim
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30 wherein said first switch unit is
configured such that a terminal part of said first
reed switch part and a terminal part of said second
reed switch part are provided on a back surface side
of a mold base supporting said second reed switch
part, and

35 said second switch unit is configured such
that a terminal part of said first reed switch part
is provided on a back surface side of a mold base
supporting said first reed switch part.

24. An electronic apparatus including an
5 electronic apparatus main body and an attachment
loaded in said electronic apparatus main body,
wherein one of said electronic apparatus
main body and said attachment is provided with a
switch operable under a predetermined condition,
10 said switch including a plurality of reed switch
parts and at least one connecting member of an
electrically conductive non-magnetic material via
which said plurality of reed switch parts are
serially connected, and
15 the other one of said electronic apparatus
main body and said attachment is provided with an
external magnetic field generating assembly
generating magnetic fields meeting said
predetermined condition for operating said switch.

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25 25. An electronic apparatus including an
electronic apparatus main body and an attachment
loaded in said electronic apparatus main body,
wherein said electronic apparatus main
body includes a first switch operable under a first
predetermined condition and a first magnetic field
generating means generating magnetic fields meeting
30 a second predetermined condition for operating a
second switch,

said attachment includes a second switch
operable under said second predetermined condition
35 and a second magnetic field generating means
generating magnetic fields meeting said first
predetermined condition for operating said first

switch,

wherein said electronic apparatus main
body and said attachment configured such that when
said attachment is loaded in said electronic
5 apparatus main body, said first magnetic field
generating means of said electronic apparatus main
body opposes said second switch of said attachment
and said first switch of said electronic apparatus
main body opposes said second magnetic field
10 generating means.

26. An electronic apparatus including an
15 electronic apparatus main body and an attachment
loaded in said electronic apparatus main body,
wherein one of said electronic apparatus
main body and said attachment is provided with a
20 first switch unit including a first switch operable
under a first predetermined condition and a first
magnetic field generating means meeting a second
predetermined condition for operating a second
switch, said first switch including reed switch
25 parts,

the other one of said electronic apparatus
main body and said attachment is provided with a
second switch unit including a second switch
operable under a second predetermined condition and
30 a second magnetic field generating means generating
magnetic fields meeting said first predetermined
condition for operating said first switch, said
second switch including reed switch parts,

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27. A switch comprising at least one switch part each including reed pieces, said switch part operates by an external magnetic field acting thereon,

- 5 wherein said switch part operates only under a condition where said external magnetic field is a specific magnetic field.

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